

The Four Stages of Pandemic Response - A White Paper

By On Amir, PhD

Synopsis

The human condition during a crisis is characterised by distinct psychological changes. These changes can also be observed in marketplace behavior. Data from a large global marketplace for digital services reveals these changes in behavior patterns, as well as others, but also points to several ways in which individuals and businesses can recover.

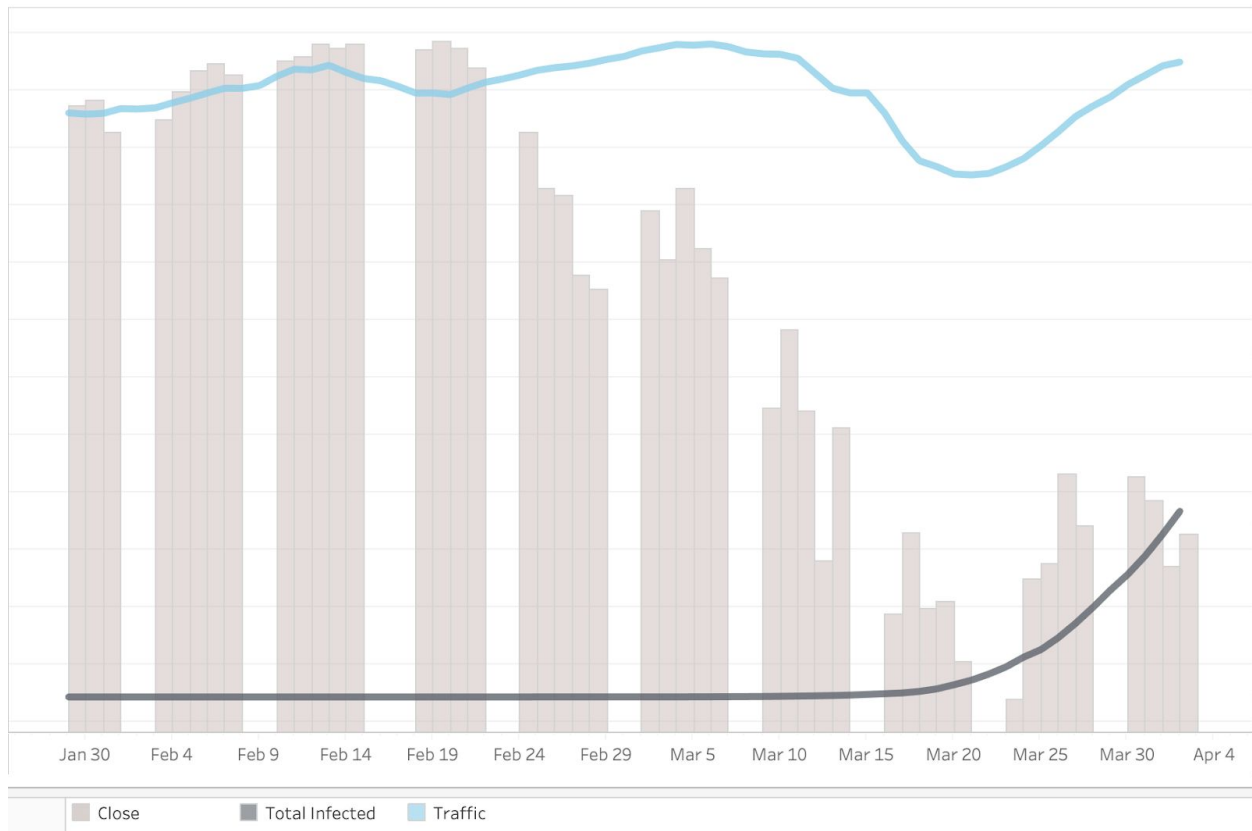
A disaster is spreading through the world impacting country after country, community after community, and we refer to it as Covid-19. What starts as a novelty viewed via some media and falls into “someone else’s problem” (also known as the *denial phase*) hits home all too soon, and to an unprecedented degree. Lacking strong levels of preparation, individuals respond in the only way they can - with *panic*. Markets grind to a halt and life seems to pause. After all, how can the natural order of commercial life continue as people are asked to social distance and stay inside their home? When the physical markets stumble, so do the global stock markets. But as people gravitate toward a digital life, meeting their friends, family, and work relations via digital means, the question becomes, what is the impact on the world of digital commerce, and in particular, digital services? Are we seeing the same patterns in activity driven by our psychological states, even though none of the physical restrictions are relevant? If anything, the growth of digital demand increases and emphasizes the needs for such services, so should we expect a different effect, or perhaps none at all? To shed light on some of these questions, as well as any parallels to the fundamental human response to crises, we turn to Fiverr Inc., one of the largest marketplaces for digital services.

Let us begin with the big picture. Research programs by Kruglanski and colleagues¹ find distinct stages of coping with the dread caused by terror attacks and other disasters. Do we see these known stages of coping with stress, mortality-salience, and with uncertainty about the economic situation -- of denial, panic, survival/self-preservation, and adaptation -- aligned with activity on Fiverr’s platform? One piece of evidence can be gleaned from overall activity levels. Is it the case that digital freelance commerce continued as if nothing has changed (*denial*), then exhibited an unexplained drop (*panic*), then picked up back, but maybe not with the same mixture of service types (*survival/self-preservation*), and then rebounded with increased vigor (*adaptation*)? As can be seen in Figure 1, the answer is certainly yes. Moreover, while customers already engaged in digital commerce seem to continue with their business, the latter part of the prediction implies an inflow of new customers with novel needs, akin to a firm entering a brand new market. Such growth is often characterised by an introduction of new customer segments and involves an adaptation of the strategy. On Fiverr, with the flexibility of a digital marketplace guided by the empirical supply and demand, this usually translates into uncovering unmet needs from search terms that do not find suitable service providers, followed

¹ For example: <https://www.tandfonline.com/doi/full/10.1080/01973533.2010.519196>

by the creation of such novel service categories. In the post panic period, they are observing a substantial inflow of new customers with a diverse set of needs, and as a result have already launched 7 new types of service categories, with 10 more coming online in the next few weeks.

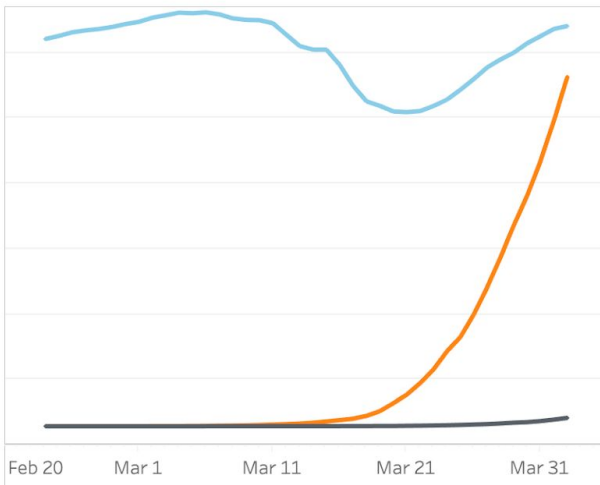
-- Figure 1 -- Total US activity levels on Fiverr, as compared to the S&P 500, and US infection levels



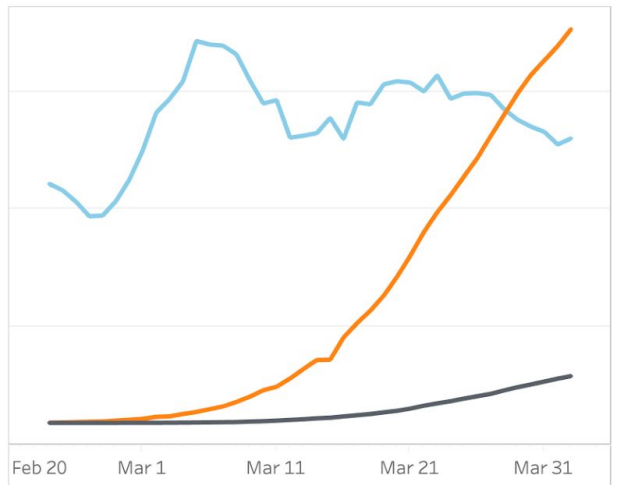
We can also try and deduce the drivers of said panic: is it the degree of the spread of infections driving marketplace behavior, or rather the media and social media? Figure 2a reflects the changes to marketplace activity as a function of infection levels and mortality rates. Figure 2b is an example of the correlation between major media stories and responses - in this particular example, the relationship of tweets by President Trump and marketplace activity in the US. The acute observer can see that while infection levels do not relate to marketplace activity and to panic in particular, major media exposures do.

-- Figure 2a -- Marketplace activity is not related to morbidity or mortality rates

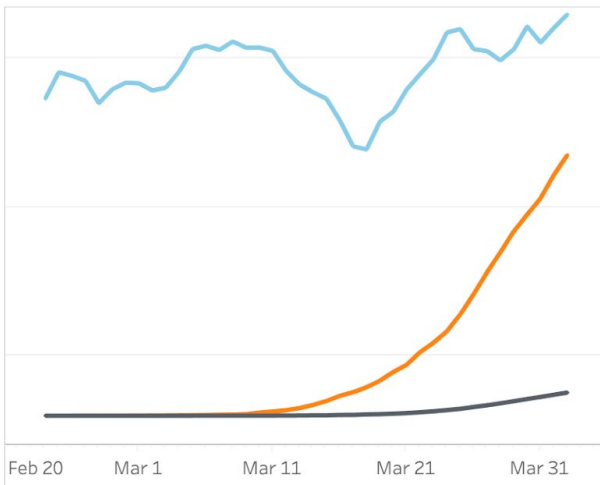
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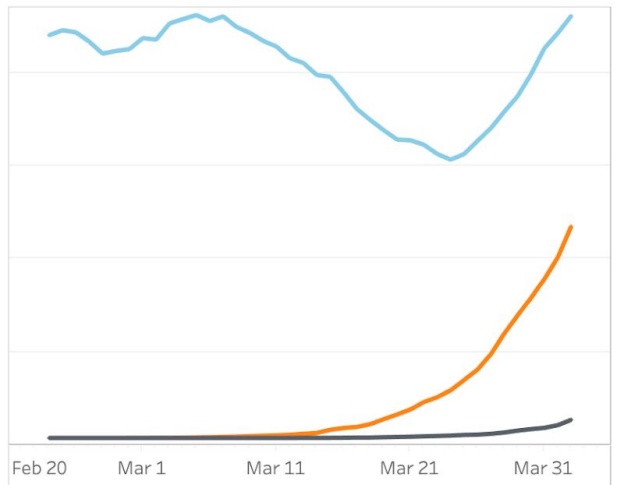
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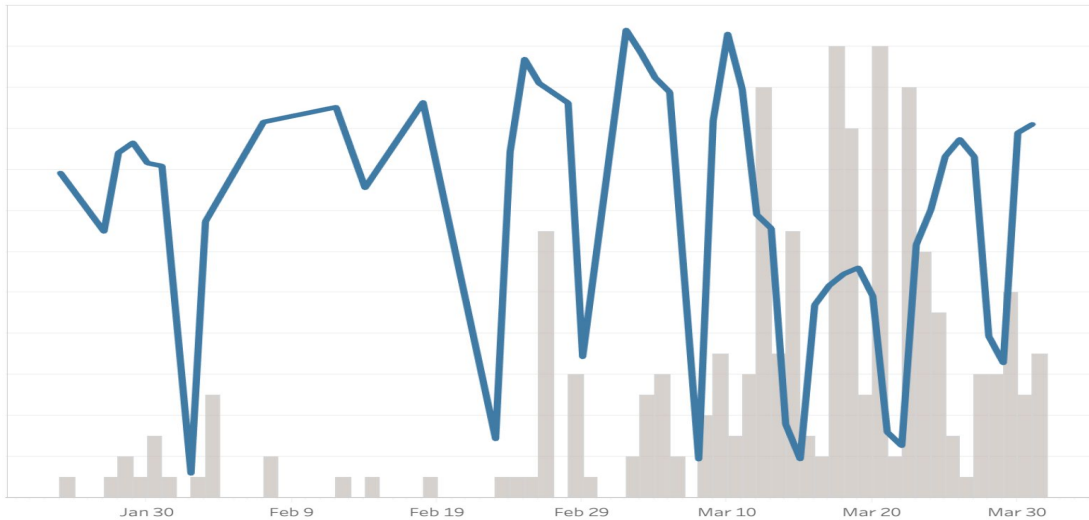


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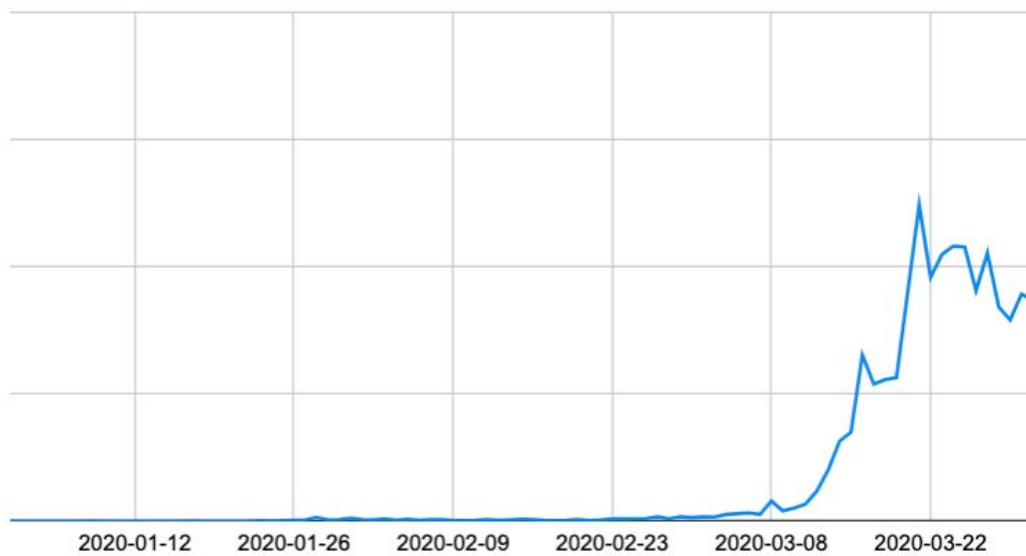
■ Deaths ■ Infected ■ Traffic

-- Figure 2b - Activity levels (US) and President Trump pandemic related tweets



A third indicator for a *panic* response can simply be observed by the kinds of information and services individuals might search for, and indeed quite a few searches on the Fiverr marketplace involved questions relating to Covid-19 (Figure 3). Needless to say, Fiverr does not specialize in Covid-19 related services.

-- Figure 3 -- Number of searches for the term "Covid-19" on Fiverr

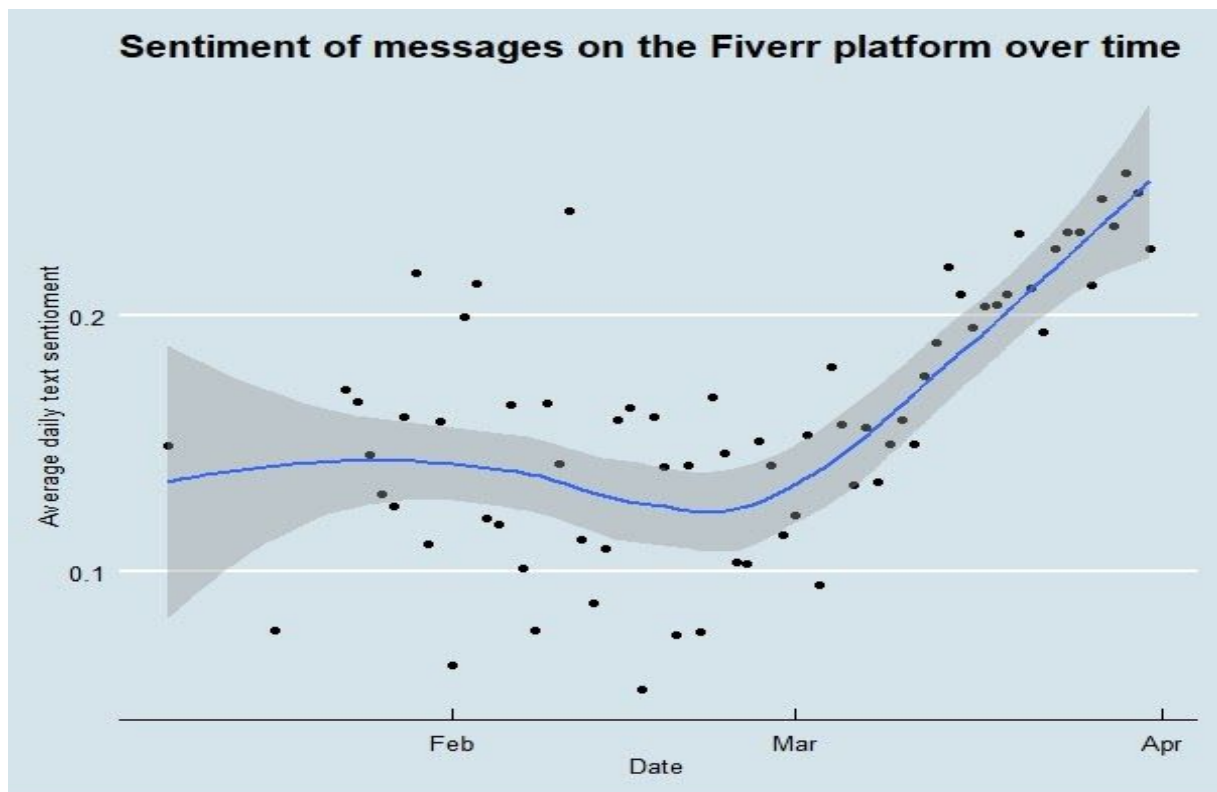


Psychologists researching crisis responses tell us that after the initial panic people often seek out solace and meaning in sociality. In other words, they seek social support, leadership, and content. Not just knowledge about what to do, but also something to occupy the mind and distract from the woes of reality. Isolating individuals, the proper governance in a pandemic situation, leaves people with fewer avenues to recover their loss of control and sense of a safe

world. Lacking strong leadership, individuals connect to others via remote means (e.g., digital conferencing, social media), but also attempt to complement what they lost in freedom through digital means. As a marketplace for digital services, Fiverr is one such channel for digital content and activity. If people indeed behave in reality as psychologists predict they will, we should observe an increase in such demand for content. The aforementioned new service categories indeed include emphasis on new skills acquisition, such as coding and languages, but also of crafts and cooking.

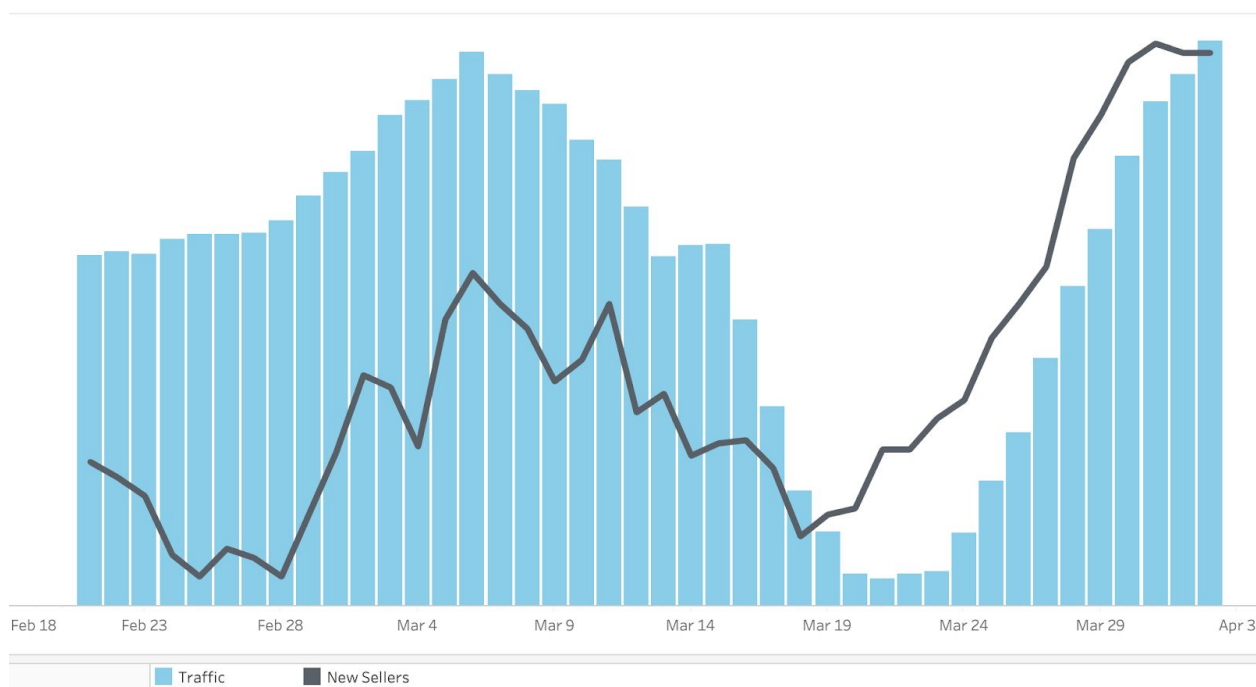
More interesting perhaps is the degree of sociality seeking exhibited by economic actors in the marketplace. As a marketplace for services, digital communications relating to orders are a regular part of doing business. With the growing need for sociality, do we observe a change in the type of messages being sent? Amazingly, we do, the rise in communal and social empathy can be measured by the degree and valance of the sentiment of messages sent. Sentiment is measured using a natural language processing (NLP) algorithm in R, with a scale ranging from -1, negative sentiment, to +1 positive sentiment. Normal business transactions, for example, would score slightly above 0, the neutral point. High sentiment is characterized by high empathic concerns, as opposed to practical utilitarian trade related appeals (Figure 4). It is heartwarming to see this phenomenon with individuals across the globe, cutting through the developed-developing economic divide.

-- Figure 4 -- Message sentiment over time



Small and medium businesses (SMBs) are also required to adapt. As many value channels shut down, the one remaining is the Internet. As SMBs realize this, we should observe greater motivation to fortify the digital channel if they had already established it (e.g., by revamping website, optimizing strategies and search engine performance, or designing digital content), or establishing themselves anew in this channel (e.g., by posting their services on the marketplace, or creating e-commerce tools from scratch). If this is the case, we should observe increased growth past the recovery stage, especially in domains providing such services, but also an influx of new businesses offering their services. Figure 5 exhibits both these trends. What is of particular interest is that about 80% of the new freelancers who are joining the marketplace have not offered services online, and many have not heard of the Fiverr marketplace before.

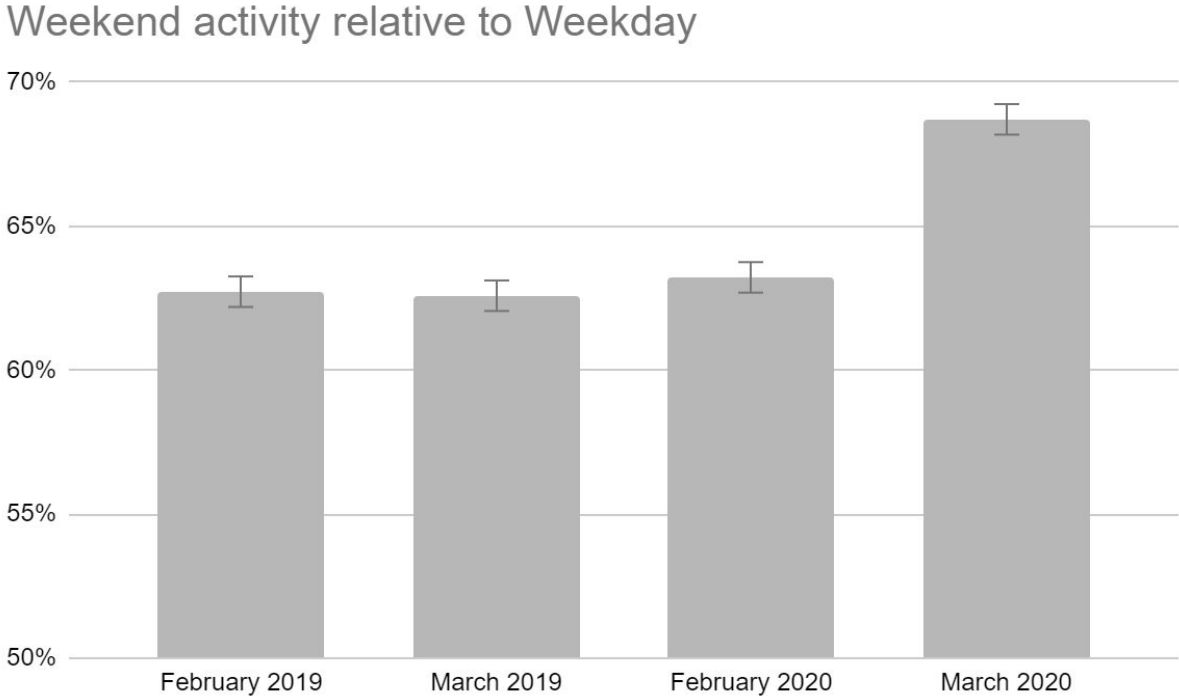
-- Figure 5 -- New Seller growth during the pandemic



Finally, as adaptation converges with what might be the new normal, as individuals adopt new habits, and firms adopt novel business models and practices and figure out new ways to support their existing models, can we shed some light on the shape of the new world, at least in the near future? One aspect that we may be able to foresee has to do with the business cycle. Most companies around the globe experience a natural day-of-the-week cycle, whereby weekday business volume is distinct from that of the weekend. If one is part of the teleconference business these days, it is not uncommon for someone to pose the otherwise odd question of “say, what day is it?” Without the regulating power of routine, and with the new types of services customers require, it is likely that the age old *weekday effect* will be eroded. Early evidence of this can be seen by the comparison between average weekday vs. weekend activity. When we

compare the activity volume of Feb. 2020 with that of March 2020, contrasted with the same comparison a year before to account for natural month differences (Figure 6). We see a substantial relative increase in weekend activity (16%), as compared to the weekday activity in the same period (average weekday activity normalized to 100%)..

-- Figure 6 -- Increase in Weekend traffic relative to Weekday traffic



Rooted deep in human psychology, the four stages of pandemic response are reshaping the world we live in. Those ready for it will be quicker to bounce back into a semblance of normality and rekindle the lost motivation for growth and productivity. As evident above, businesses who employ freelance online talent seem to continue doing what they do, while others are adapting and learning to take advantage of the global opportunities and talent accessible through digital marketplaces.

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